NEW BEES AND WASPS—Part XXIII

By Tarlton Rayment, F.R.E.S.*

MEGACHILE CLIFFORDI Raym.

In January 1954, during the greatest heat of the summer, two female bees were observed by Clifford Beauglehole to emerge from a "nest" in a post at Gorae West, which is nine or so miles north-west of Portland.

The hardwood (*Eucalyptus*) was nearly five inches square in section, and supported part of a trellis-work near the house. At the height of four feet, an oval entrance led down into a gallery of five cells, and since this is the first description of the nest of this species, it is given here in some detail.

The gallery had undoubtedly been bored originally by a small longicorn beetle. It was oval in section, measuring 8 mm. at the long axis, and 6 mm. at the short, with a total length of 10 cm. (4 inches approximately). It went in first for half its length at an angle of 45 degrees, but the basal half then turned down almost vertically.

The five cells were constructed in the lower half, and the walls were entirely devoid of drapings but were divided off by a remarkable tough tar-like substance—jet-black and shining, and of the consistency of putty. It was otherwise a simple style of nest. At the extreme base was a "packing" of loose "borings", then a black wad. There was a fully developed female, about to emerge, in each of cells 1 and 5.

The female in the basal cell had a formidable task. It is an immutable law throughout the bee world that not one bee will emerge to life by biting through the cocoon of its brother or sister. Indeed, I have known individuals to perish in the natal cradle rather than attack and destroy the adjacent cocoon barring their emergence to the light.

Cells 2, 3 and 4 were occupied by the hairy larvae of some strange insect, possibly parasitic, but they could not be identified. However, the female bee had no merciful inhibitions with these strangers, attacking them without the slightest hesitation as though they were merely a little rubbish to be cleared away. Needless to say, the larvae suffered fatal injuries in the process.

The tar-like substance in the nest proved to be very impervious to water and quite insoluble in alcohol. However, it did dissolve in turpentine, and immediately and more thoroughly in ether. It dissolved into a dark-brown "treacle" without any odour. In an endeavour to discover its origin, the author carefully removed some small pieces of kino which were present in a tiny "gum-vein" in the wood. These would not dissolve in alcohol, and turpentine had little effect on them. It was plain that some other substance was involved, probably resinous although no characteristic odour was perceptible.

It is certainly not a gum since it is not affected by water or alcohol, and it contains no trace of leafy particles. Under high magnification it showed no structure, and it contained no pollen-grains. It is the most bitumen-like substance yet found by the author in any bee's nest, and it would be an interesting task to discover its source; but it could, of course, be manufactured by the bee from some other material. It is apparently manipulated in globules, which are just stuck directly onto the wall, where they adhere with the tenacious grip of glue.

During January 1954, the collector had kept a female under observation as she worked on a nest, but fearing that she was about to complete a series of cells and might then depart for another site, he deemed it advisable to capture her for identification.

The "nest" was chopped out of the top of a dry *Eucalyptus* log lying on the ground in the shelter-belt. It was comprised of three cells, two of which were fully provisioned, with an egg attached to one and a larva to the other; the third was in course of being stored, but the fine weather suddenly ended

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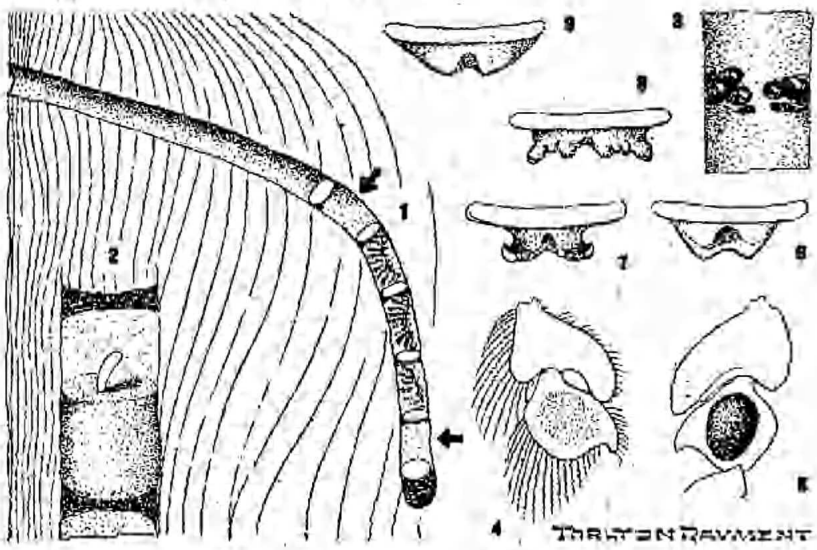
and heavy rain set in, flooding the gallery. As a consequence of the wetting and the cold, both the egg and the larva perished.

The gallery was again the work of a longicorn beetle, and oval in section. The cells measured 10 mm. in length, 9 mm. at the long axis of the oval, but only 6 mm. at the short. As before the walls were quite bare of draping of any kind, and the divisions which formed the cells were of the black tarry substance already described.

The puddings were of a light olive-green colour, of a soft smooth pasty consistency, and the pollen-grains had been gathered from several plant species. Many were from *Lotus*, and others had been harvested from some myrtaceous plants, perhaps *Leptospermum scoparium*; there was only a very rare hurry one from some composite.

None of the females received carried any pollen-grains in the abdominal scopa, but it would appear that the females are polylectic, visiting several genera of plants. Clifford Beauglehole had recorded the females on *Leptospermum scoparium*, *Lotus australis*, *L. major* and *L. hispidus*.

The male (type) was taken on flowers of *Leptospermum scoparium* during December 1950, and now the nest and the female are known. The specific description of allotype is appended.



Details of *Megachile cliffordi* Rāym.

1, Gallery in post, occupied by two females whose cells are indicated by arrows. 2, A cell enlarged to show pudding with the egg. 3, The jet-black globules stuck roughly to the walls. 4, The expanded tarsi of the male's anterior leg. 5, The black "eye" or macula which is on the inner side. 6, Caudal keel of the male. 7, Caudal keel of *M. kirbiella* Rāym. 8, Caudal keel of *M. portlandiana* Rāym. 9, Caudal keel of *M. paratasmanica* Rāym.

MEGACHILE CLIFFORDI Rāym.—*Bees of the Portland District*, p. 33, 1953.

Allotype, Female—Length, 11 mm. approximately. Black, with white and apricot bands of hair.

Head transverse, shining, with considerable dull-white and ochreous hair; face with more ochreous hair laterally; frons closely and coarsely punctured;

clypeus coarsely punctured; hair longer, many small punctures, anterior margin straight; supraclypeal area similar; vertex long, closely punctured, some blackish hair; compound eyes converge slightly below; genae closely punctured, a few white hairs; labrum black; mandibulae black, dull, somewhat granular, with many caniculae; antennae black, short.

Prothorax not visible from above; tubercles black; mesothorax shining, the coarse punctures contiguous; the erect hair on disc blackish; there is a patch of ochreous hair near the tegulae; scutellum similar; postscutellum very small; metathorax with some rough tesselation, and a few fine rugae basally; abdominal dorsal segments black, shining, closely punctured, depressed basally and apically, a little white hair, basally and laterally, on the disc the hair is black, on 3 and 4 there is a short bar laterally of apricot-coloured hair, and the apical segments have a dusting of the same colour; ventral segments with a scopa of straw-coloured hair, closely punctured.

Legs black, with a little white hair; tarsi black, hair yellower; claws bifid, reddish; hind calcar reddish-brown; tegulae black, shining, closely punctured, wings dusky; nervures blackish; cells normal for the genus; a dark cloud in the radial; pterostigma inconspicuous; hamuli eleven, strong.

Locality: Gorae West, Victoria; Jan. 15, 1954; leg. Clifford Beaglehole.

Allotype in the collection of the author.

Allies: Clearly in the *M. tasmanica* Ckll. group, but there are no lateral red maculae on the abdomen. There is also some approach to *M. wilsoni* Ckll., by the hair-bands of the abdomen.

Clifford Beaglehole's altruistic work will long be regarded as a foundational one in the natural history of Portland. The Portland Field Naturalists Club has established a criterion for similar bodies, by its initiative in compiling an admirable record of its fauna and flora while there was yet time, and its publication, *Bees of the Portland District*, drew an encomium from the Protector of Fauna and Flora of New South Wales.

SNOWY RIVER SAGA

By N. A. WAKEFIELD

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Soon after the inception of the State of Victoria, just over a hundred years ago, Dr. Ferdinand Mueller was appointed to the position of Government Botanist in Melbourne. Within three years of the date of his taking office, he had journeyed over 5,000 miles throughout the new colony, for the purpose of "elucidating its flora" as he used to say. In his official report for 1854, the indefatigable explorer described how he "reached, in the middle of March, the country beyond the mouth of the Snowy River, the most southerly locality in which palms exist in the Australian continent". Now, with a century gone by, we find there—in place of a vast expanse of virgin jungle—the richest farm-land in the State. And therein lies our story.

The area was discovered in 1836, and was visited again in the two years following by William Morris, a pastoralist of Moruya on the South Coast of New South Wales. Probably from Nungatta Station, which he took up on the Upper Genoa River at about that time, this explorer led parties on three south-westerly expeditions. On the first occasions, progress was blocked by the Snowy River; but on the third attempt a crossing was effected, and the stockmen took 500 head of cattle right along to the Gippsland Lakes. There the blacks harassed them so persistently that after a week of strife they were forced to return, abandoning the stock to be slaughtered by the natives.

Then, in 1842, Peter Imlay—one of the three brothers who pioneered the Twofold Bay district in the 'thirties—took 800 head of cattle to establish a station on the eastern side of the mouth of the Snowy River. Again the aborigines rose in defence of their hunting-grounds and were once more the